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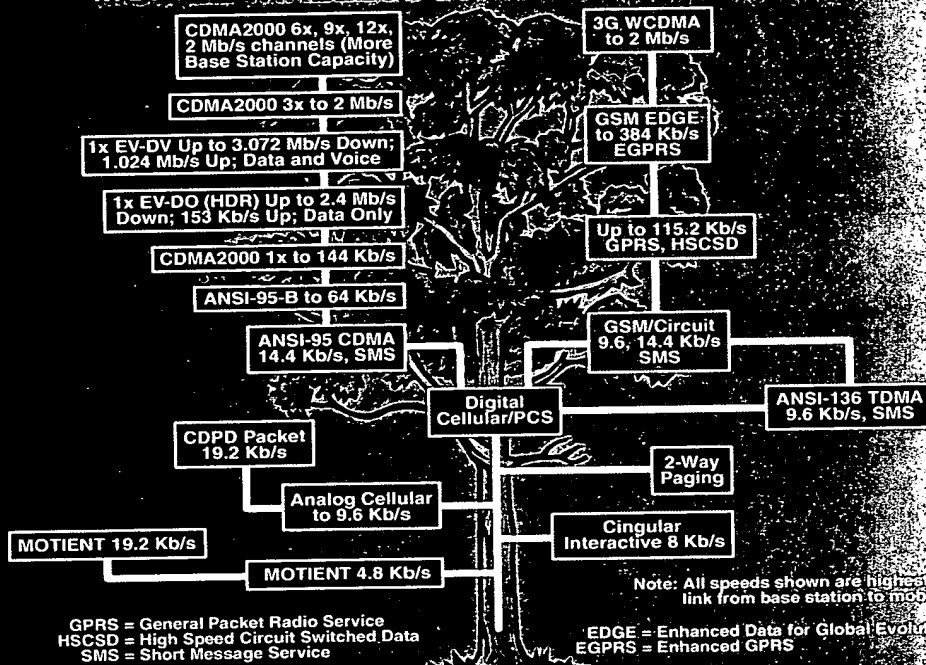
Telecommunications Research Associates

exhibition 1

Presents

Understanding Emerging Wireless Technologies™

MOBILE WIRELESS DATA TECHNOLOGY TREE



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UNDERSTANDING THE FUTURE

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In **802.11 wireless LANs**, a method of **authentication** that does not employ shared secret information. **Hotspots** will use open-system **authentication** to allow any **802.11** user to join the **network**. Other **networks** with minimal security concerns may use open system **authentication** as well. Open Systems are much less secure than systems that use a Shared Key approach.

Open Systems Interconnection

Please refer to **OSI (Open Systems Interconnection Reference Model)**

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optical fiber

Please refer to **fiber (optical fiber)**

OR (OR gate)

In **digital** logic, an operation or device which results in a high state if any of its inputs are high.

Following is the truth **table** for two inputs:

OR (OR gate)

In **digital** logic, an operation or device which results in a high state if any of its inputs are high.

Following is the truth **table** for two inputs:

originate

(1) In **telephony**, the process of lifting the **handset off hook**, waiting for a **dial** tone, then entering the **telephone** number of the **terminating** party.

(2) In **switching**, originate or origination describes the **subscriber** or central office **switch** (or both) which initiates a **telephone** call.

orthogonal

(1) In a **Direct Sequence CDMA** system, a mathematical relationship among separate **channels** using different "**codes**" (or **scrambling algorithms**) within a composite **signal**, created by the **base station**, that minimizes **interference** among the **channels**.

With orthogonal **codes**, a single **channel** within the composite **signal** can be received by applying the same **code** to the composite **signal** as was used to **scramble** the desired **channel** at the **transmitter**. When this **code** is applied to the composite **signal**, it will correlate with that component (or **channel**) of the composite **signal** which used that **code** and will correctly unscramble that **channel**, while failing to correlate with the other **channels** which used different **codes**—thereby rejecting those **channels**.

Allows a **receiver** to recover the intended **signal** while minimizing the **interference** caused by other (orthogonal) **signals** transmitted within the same **frequency spectrum**.

(2) In **IS-95 CDMA** and **IS-95-based PCS**, each row of a specific 64 x 64 matrix is said to be a **Walsh code** or a Walsh function. These **Walsh codes** are said to be orthogonal in that the sum of the products of corresponding elements in the **codes** is zero if they are different **codes**, and nonzero if they are the same **code**. Note: The foregoing is true provided that a "1" **bit** is represented by a +1 and a "0" **bit** is represented by a -1. This representation gives results that are equivalent to the sum of **exclusive OR** (XOR) outputs as actually implemented on the integrated **circuits**.

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